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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,053	12/12/2003	Gopal Pingali	YOR920030551US1	2500

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HARRINGTON & SMITH, LLP
4 RESEARCH DRIVE
SHELTON, CT 06484-6212

EXAMINER	
SEVER, ANDREW T	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/735,053	PINGALI ET AL.
	Examiner	Art Unit
	Andrew T. Sever	2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claim 30 is withdrawn in view of the newly discovered reference(s) to Miyamoto et al. (US 5,114,224) in view of Connelly et al. (US 2003/0202156) and in view of Raskar et al. (US 6,793,350.) Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 5, 6, 15-29, 32, and 34-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. (US 5,114,224) in view of Connelly et al. (US 2003/0202156.)

Miyamoto teaches in figure 1 a positioning system comprising,

At least one mount (10) for mounting a projection unit, the unit comprised of at least a projector (11) for projecting a distorted image (since it is designed for projecting on a curved surface it must project at least a slightly distorted image since a non-distorted flat image would not appear correct on a curved surface (see Raskar et al. (US 6,793,350));

wherein the at least one mount is coupled to a mechanism for providing rotational movement for adjusting one of a position and an orientation of the projection unit to produce from the distorted image a substantially undistorted image on a surface (it is obvious that a undistorted image would be produced, in general people do not purposely make highly distorted images when advertising which is what Miyamoto is designed for.

Miyamoto does not teach the mount is coupled to a mechanism for providing translational movement for adjusting the position of the projection unit. Connelly teaches in figure 1a, a mechanism for providing translational movement for adjusting the position of a projection unit mounted on it. Connelley teaches in paragraphs 9 and 10 that such a translational movement system allows for the use of multiple projectors in the same location and also more versatility in positioning the projector allowing for less keystone distortion. Further one of ordinary skill in the art would recognize that it would be useful to translationaly move the projector of Miyamoto as tracking an object such as a balloon

can be more efficiently done if the projector can follow it. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to mount the mounting unit of Miyamoto such that it can have translational movement as taught by Connelley.

With regards to applicant's claims 2 and 3:

See the embodiment of Miyamoto in figure 11 where a redirection device (30) is used, wherein said device is a mirror as claimed in applicant's claim 3.

With regards to applicant's claim 5:

The projector is coupled to a controller (100).

With regards to applicant's claim 6:

The controller is remote (i.e. not mounted on the projection unit).

With regards to applicant's claim 15:

Connelly teaches using a rail system.

With regards to applicant's claim 16:

The rails of Connelly are fixed to a surface.

With regards to applicant's claim 17:

See part 4 of Miyamoto.

With regards to applicant's claim 18:

As described in column 4 of Miyamoto, geometric information is used in determining the projection position. (Cartesian coordinates are a type of geometric information.)

With regards to applicant's claim 19:

The system of Miyamoto includes part 12 which serves as tracking and sensing equipment for identifying a position of the at least one projector.

With regards to applicant's claim 20 and 22:

The mount of Miyamoto can position the projector with two degrees of freedom.

With regards to applicant's claim 21 and 23:

Miyamoto in view of Connelly allows for 3 degrees of freedom.

With regards to applicant's claim 24-28, and 32:

See above where the method of using the projector to make an undistorted image upon a surface is obvious in light of the projector that does so.

With regards to applicant's claim 29:

Connelly teaches the system can be used with two projectors or more.

With regards to applicant's claim 34:

Part 4 is basically a computer that executes a computer program for positioning a projection unit to provide a substantially undistorted image upon a surface.

With regards to applicant's claims 35-40:

See above.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Connelly et al. as applied to claims 1-3, 5, 6, 15-29, 32, and 34-40 above, and further in view of Machtig (US 5,278,596.)

As described in more detail above, Miyamoto in view of Connelly teaches a positioning system for a projector, which among other things includes a redirection device, however Miyamoto in view of Connelly does not teach the use of optical fiber, and lenses for redirecting projected light. Machtig teaches in column 1 line 64 through column 2 line 18, that such a system allows for the light source to be kept separate from the heat sensitive components and it also allows for mechanism allowing the projector to be moveable without sacrificing brightness of the projected image. Accordingly since it would be desirable to use as bright of a projector as possible to project on the distant moving screens of Miyamoto; it would have been obvious to one of ordinary skill in the art at the time the invention was made to include optical fiber to channel light from a stationary light source to the redirection device.

6. Claims 7-13 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Connelly et al. as applied to claims 1-3, 5, 6, 15-29, and 32-40 above, and further in view of Pinhanez (US 6,431,711.)

As described in more detail above, Miyamoto in view of Connelly, teaches a positioning system which among other things comprises a projector and a mechanism for providing both translational movement and rotational movement. Miyamoto in view of Connelly do not teach that the system is used for user interaction. Pinhanez teaches a similar system to that of Miyamoto in view of Connelly in figures 8 and 9. Pinhanez's system further includes an interactivity portion allowing interaction between people and a projector (see column 2 lines 15-25.) Pinhanez teaches in column 1 lines 54 through column 2 line 2, that having an interactive region for a user interaction has the advantage of allowing a user to change slides or other video medium without having to break the flow of the presentation. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the projection system of Miyamoto in view of Connelly interactive as taught by Pinhanez since such a system allows a user (or plurality thereof) to take even greater advantage of the moving projection screen of Miyamoto (for instance a user could bring the screen to them and control part of the presentation and then it could be moved to another user to do likewise without having to deal with moving the computer or remote control around which can cause some difficulties.)

With regards to applicant's claim 8:

Pinhanez teaches a variety of uses for such a system at column 15 lines 60-61 including bringing up diagrams and one of ordinary skill in the art would also expect it to include such things as starting playing of a video on a remote video player as this is the advantage of Pinhanez that things operated either by moving the controller around or a remote control can be controlled just by interaction.

With regards to applicant's claims 9-11:

The mounts of Miyamoto in view of Connelly in view of Pinhanez would be used to hold the interaction recognition system.

With regards to applicant's claim 12:

Both Pinhanez and Miyamoto teach cameras.

With regards to applicant's claim 13:

Pinhanez teaches using voice in column 12 lines 39-45.

With regards to applicant's claim 33:

The method of using the projection system of Miyamoto in view of Connelly and Pinhanez is obvious.

7. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Connelly et al. as applied to claims 1-3, 5, 6, 15-29, 32, and 34-40 above, and further in view of Raskar et al. (US 6,793,350.)

As described in more detail above Miyamoto in view of Connelly teaches a method for projecting a distorted image on a non-stationary curved screen (for example a blimp), however they do not teach the use of more then one projector wherein the projection unit produces a first portion of the distorted image and the at least another projection unit produces another portion of the distorted image. Raskar teaches in figure 1 a method for projecting an undistorted image upon a curved image with more then one projector, which includes projecting a structure light pattern (calibration image as is claimed in applicant's claim 31). As shown in figure 4 of Raskar multiple projectors can be used in projecting on large curved surfaces and a first projection unit produces a first portion of the distorted image and a second projection unit produces another portion of the distorted image. Raskar teaches that prior art methods of projecting on large curved or irregular shaped surfaces with stationary projectors required several hours each day to align (see column 1 lines 60-65), this is clearly not an option with the projection system of Miyamoto in view of Connelly as the projected surface moves. Raskar teaches that Raskar's method allows for projecting on curved display surface with easy calibration (See column 2 lines 55-63.) Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Raskar's method of projecting with multiple cameras on large curved surfaces in the method of projecting taught by Miyamoto in view of Connelly.

Response to Arguments

8. Applicant's arguments with respect to claims 1-13 and 15-40 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6,866,390 to Belliveau teaches in figures 2 and 3 a projector which can pivot about at least one axis.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS

JUDY NGUYEN
SUPERVISORY PATENT EXAMINER